



RELOOKING SPSS THROUGH HERBASOFT (A TAILOR MADE APPLICATION FOR HERBAL RESEARCH)

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ABSTRACT

Technological change is an accelerating process. The more technology there is, the even greater are the possibilities for new combinations and advances, and for positive feedback loops between science (and knowledge, in general) and technology. In any kind of research, what we are mostly concerned is DATA. Data when processed yields Information. Proper Data Management is required not only for the present analysis, but also for future predictions. Therefore, an analytical tool should have provisions for keeping the data permanently. Today, several software's are available with innumerable features when it comes to dealing with text, graphics, audio, and video. For example, SPSS, which is popularly known as 'Statistical Package for Social Science' mainly, finds its application for in-depth analysis. The software has got its own database to store various data. Various mathematical calculations can be performed so as to throw light on different aspects of study. Taking this concept a step further ahead, the effort is to develop customized software so that 'Random Data Analysis' as well as predictions becomes possible in various stages of project development. Herbal Research, as we all know, is a multidimensional field. Thus, a strategy can be adopted and that is the 'Universal Data Access' (UDA). The objective of UDA is to provide access to data irrespective of whether the data is stored in a relational database or a non-relational database i.e. in Cloud medium. In the world of application development, no matter how hard we try, errors creep into the application. The cause of errors may vary from logical discrepancies in the program to the unexpected mouse click or key press by the user. Hence, the need of the hour is to have a 'Robust Application' that can act as a bridge between the have and have-nots.

KEYWORDS: Data, Data Management, SPSS, Databases, Herbal Research, Universal Data Access, and Robust Application.

INTRODUCTION:

Human beings have a tendency to want to explain and understand the world around them, leading to a variety of explanations. It is very common these days for a large section of humanity to look for explanations that are scientific. As science made increasing strides revealing in turn the secrets of nature over which humankind tried to rule, the methodologies employed by the natural and physical sciences came to rule as to what should be the best methods of acquiring knowledge. Thus, a need is felt for a process of rigorous scrutinization and examination of one's findings without any bias.

Herbal research, in general, refers to any study pertaining to herbs, shrubs, and trees. The correlation between humans and diseases is quite contemporary and goes hand in hand. Humans are always prone to various diseases and as such there comes the need for providing assistance in the form of medications. Of late, herbal medicines are known to have profound effect on humans. So, a community can depend entirely on the available resources to mitigate the impact of diseases. Recently, we are facing a global pandemic and that is COVID-19 (Corona Virus Disease, 2019). Normally, a study is focused on a certain area where there are a number of patients. Say for example, few GP's (Gaon Panchayets) can be taken as the study area. The number of patients will be taken into consideration. Several criteria need to be chosen as per the requirement of study. The patients suffering from various diseases will be categorized. So, after thorough consideration among the cases, their past histories, treatment adopted earlier etc. etc. a new roadmap can be established to assess whether any medicinal herbs/plants can be supportive to ensure long term relief to the patients. Of course, the severity of the disease should be taken care of. A systematic database needs to be established mapping the eco-geographic, ecological, and taxonomic records. Certain criteria need to be followed while selecting the plants including the commercial value of the species, varieties available, degree of domestication, whether wild or cultivated, quantity of plant materials required, the end product used and others. Therefore, we need to contemplate the research activity in two facets. One is the phase of data collection and the other is analyzing the data. All software applications can be collectively called 'Data Processing'. Software is built to process data, to transform data from one form to another; that is to accept input, manipulate it in some way, and produce output. A data flow diagram is a graphical technique that depicts information flow from input to output. The following fig (Fig. 1) is a basic model of a Data Flow Diagram. Interconnecting arrows may be used to represent the flow of information.

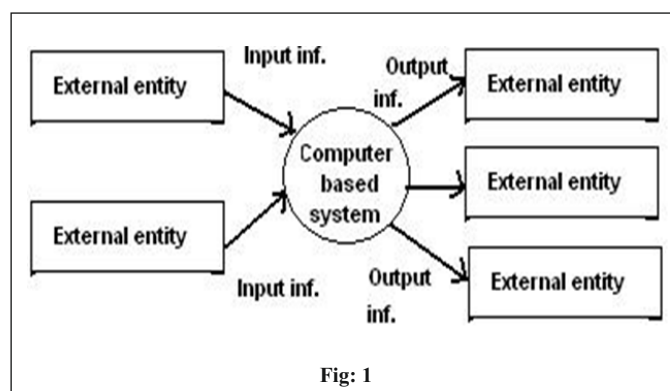


Fig: 1

LITERATURE REVIEW:

Plants have remained the main source of medicines for men and animals since the beginning of our civilization. This has laid-out foundation of modern drugs and pharmaceutical industry. Biotechnology, information technology and herbal technology are the three emerging technologies of the 21st century, and the judicious use of these technologies will help to achieve significant progress in developing many new products, processes, technologies and services based on biological resources, particularly medicinal plants and indigenous knowledge systems. Nature provides effective remedies against many common conditions and ailments. According to the World Health Organization (WHO, 1977) "a medicinal plant" is any plant, which in one or more of its organ contains substances that can be used for the therapeutic purposes or which, are precursors for the synthesis of useful drugs. This definition distinguishes those plants whose therapeutic properties and constituents have been established scientifically and plants that are regarded as medicinal but which have not yet been subjected to thorough investigation. The term "herbal drug" determines the part/parts of a plant (leaves, flowers, seeds, roots, barks, stems, etc.) used for preparing medicines (Anonymous, 2007). Medicinal plants are plants containing inherent active ingredients used to cure disease or relieve pain (Okigbo et al., 2008). The use of traditional medicines and medicinal plants in most developing countries as therapeutic agents for the maintenance of good health has been widely observed (UNESCO, 1996). Many plants possess antimicrobial activities and are used for the treatment of different diseases (Arora and Kaur, 1999). These early attempts used natural substances, usually native plants or their extracts and many of these herbal remedies proved successful (Sofowora, 1982). Green plants possess the broadest spectrum of synthetic activity and have been the source of many useful compounds (Sofowora, 1986). Our knowledge of the plants in our environment is far from complete. Fossil records date the human use of medicine to the late Paleolithic age around 60,000 years ago (Fabricant and Farnsworth 2001). According to the World Health Organization (WHO), 80% of the population in developing countries including India relies on traditional medicine, mostly in the form of plant

drugs for their health care needs. Additionally, modern medicines contain plant derivatives to the extent of about 25%. On account of the fact that the derivatives of medicinal plants are non-narcotic having no side effects, the demand for these plants is on the increase in both developing and developed countries.

STUDY OBJECTIVES:

The purpose of developing this software was to create awareness among the students / stakeholders in the field of dissemination of knowledge. The various features that were associated with the study on Herbal Research were depicted in the form of pictorial illustrations. In different places, patients were categorized and diseases were segregated in order to throw new light on the mode of treatment. Plus, effort was being given to develop a mechanism so that it grips the interest of the viewers and propels them to dive deeper into the subject.

MATERIALS:

In order to develop the software, the following materials were used. One is Visual Studio and the other is SQL Server. In order to develop software, there has to be a TOOL that can enable us to design and integrate the components effectively as well as efficiently. As such, Microsoft Visual Studio is one such platform that can deal with the intricacies in depth. Visual Studio is the most popular programming language, and it's ideal for building database applications now-a-days. Visual Studio comes with an array of tools for building database applications, the visual database tools, that make it the best environment for developing client/server and multi-tier applications. SQL Server: SQL stands for 'Structured Query Language'. It is a language for communicating with the database. SQL Server is a relational database management system developed by Microsoft. It is an integrated environment to handle any SQL infrastructure. A database is like a container where data is stored. Data is stored inside a structure called a 'Table', which uses Rows and Columns (like a spreadsheet). Unlike a spreadsheet though, the data rows stored inside a Table is not in any particular order. Several queries are used for inserting, updating, deleting data into the table, for which a database needs to be created in order to store data.

METHOD:

Initially database was designed and the tables required for storing the data were created. Thereafter, appropriate fields were inserted for different types of data to be preserved. Data type is also mentioned in each and every field. Thereafter, various forms were designed. Coding for each and every control was precisely coded so to enhance the functionality of the application. Graphics were inserted as when necessary to give a visual representation of the proposed model and thus they can provide a better understanding for the viewers. For that, Adobe Photoshop and Adobe Illustrator were used. Databases are designed to offer an organized mechanism for storing, managing and retrieving information. They do so through the use of tables. Some of the well-known databases are Oracle, SQL Server, MS Access, MySQL, and DB2. A database model is a theory or specification describing how a database is structured and used. Common models are Flat model, Hierarchical model, Network model, Relational model. (Fig 2, 3, 4, and 5)

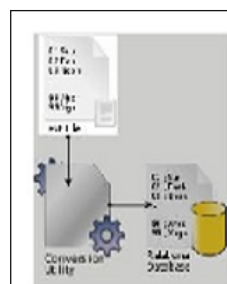


Fig 2: Flat model

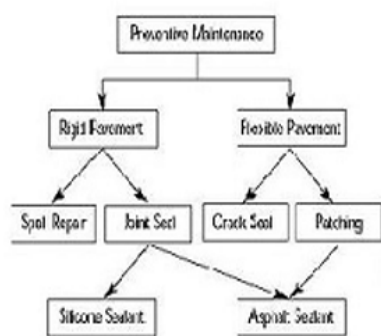


Fig 3: Hierarchical model

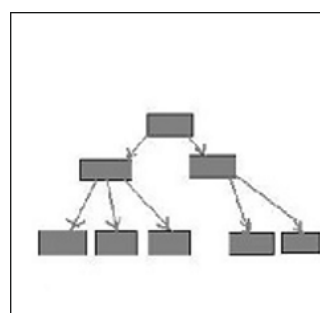


Fig 3: Network model



Fig 4: Relationship model

DISCUSSION:

The various parameters for assessment and evaluation are incorporated in the application. In a nutshell, one can have an idea about the subject matter. For example, data related to places, patients, ailments, can be easily entered and stored efficiently using this software. Herein, Visual Studio offers a family of data-bound and list-bound controls, which not only make the task easier, but also offer much greater versatility. The following are some of the screenshots that are generated by the software.

Layout of forms that are generated by the software: HERBASOFT

ANALYSIS:

In the software, HERBASOFT, several components were integrated in order to derive end results pertaining to various studies. If the input is wrong definitely the output will be wrong. The following designs depict MANAGEMENT OF DATA in the software.

Table 1: Table for the Input Design: login

Field name	Data type	Field size
Username	Text	20
Password	Text	10

Table 2: Table for the Input Design: patientdetails

Field name	Data type	Field size
SINo	Autonumber	---
Patientid	Text	10
Firstname	Text	60
Lastname	Text	60
DateofBirth	Date/Time	

Address	Text	100
Contactno	Text	20
Dateofadm	Date/Time	
Ailment	Text	200

Table 3: Table for the Input Design: placesdetails

Field name	Data type	Field size
SINo	Autonumber	---
Nameofplace	Text	50
Placecode	Text	60

Table 4: Table for the Input Design: disorders

Field name	Data type	Field size
SINo	Autonumber	---
Nameofplace	Text	50
Placecode	Text	60
Patientname	Text	60
Disease	Text	200

Table 5: Table for the Input Design: testdetails

Field name	Data type	Field size
SINo	Autonumber	---
Patientid	Text	50
Firstname	Text	30
Lastname	Text	60
Gender	Integer	---
Testname	Text	100
Result	Text	200

FINDINGS:

Medicinal plants are said to have a profound influence on our health as they helps to mitigate the impact of diseases. As a matter of fact, those resources were found to be instrumental for treating dreadful diseases. Cachar district, which is a part of Barak Valley, Assam, is blessed to have a plenty of herbs, shrubs, and trees. All throughout the study, documentation as well as analysis was carried out using the SPSS software. After the records were properly inserted in the software, we have devised a mechanism for viewing the variations.

Definite pattern for the specific datasets was also studied. In different parts of the district, the following medicinal plants were found to be present. The details of the species on which the study has been conducted are given below (Table 6).

Table 6: Medicinal plants along with their scientific name and colloquial name.

Sl. No.	Name of the species/ Scientific name	Family	Common name
1	Ocimum sanctum	Lamiaceae	Tulsi
2	Spinacia oleracea	Amaranthaceae	Palak
3	Mentha arvensis	Lamiaceae	Pudina
4	Murraya koenigii	Rutaceae	Curry-pata
5	Costus speciosus	Costaceae	Baisulyakarani-pata
6	Terminalia arjuna	Combretaceae	Arjun-pata
7	Calotropis Gigantea	Asclepiadaceae (Milkweed family)	Akanda
8	Vitex nigundo	Fabaceae	Methi-pata
9	Ocimum basilicum	Lamiaceae	Basak-pata
10	Aloe barbadensis miller	Asphodelaceae	Aloevera
11	Andrographis paniculata	Acanthaceae	Chireta-pata
12	Azadirachta indica	Meliaceae	Neem
13	Hygrophila	Acanthaceae	Kulekhara
14	Blumea lanceolaris	Asteraceae	Agijal
15	Pogostemon benghalensis (Burm.f.) O.Ktze.	Lamiaceae	Rujanto
16	Paederia foetida L.	Rubiaceae	Badhali

The following are some of the pictorial representations of the plant species mentioned above.

**CONCLUSION:**

Herbal information is a special type of information dealing with medicinal herbs. It also covers nomenclature of medicinal plants in scientific methods. Common names refer to both in English and local names of herbs and plants. A set of images of herbs is a source of sharing knowledge about herb identity. A robust programming language is an essential requirement for designing an application. Along with it, a strong DATABASE is required to support the functionalities of back-end. Also, proper hardware has to be chosen to make it supportable to the flexible environments. Software development is an arduous task. It comprises of several components that are inter-related. In order to develop a reliable application that caters to the healthcare sector, equal participation from stakeholders is of utmost importance.

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